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(54) **CUTTING DEVICE**

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B23D 45/16 (2006.01)

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CPC ***B23D 59/006*** (2013.01); ***B23D 59/00*** (2013.01); *B23D 45/16* (2013.01); *B27B 9/00* (2013.01)

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USPC 30/380–394
See application file for complete search history.

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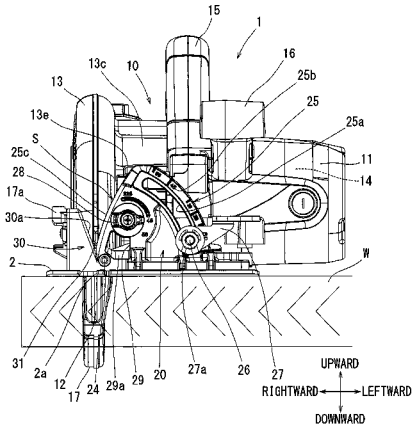
(57) **ABSTRACT**

A wind shielding portion is provided in a front side of an exhaust port for cooling air from a motor such that it crosses over a lateral width with respect to a cutting direction. The cooling air which is blown to the wind shielding portion is effectively blown through a ventilation portion having a small ventilating resistance force and towards a marking line guide. Even when the cutting device main body is set at an incline, the cooling air is blown to the wind shielding portion, and is effectively blown through the ventilation portion to the marking line guide.

6 Claims, 5 Drawing Sheets



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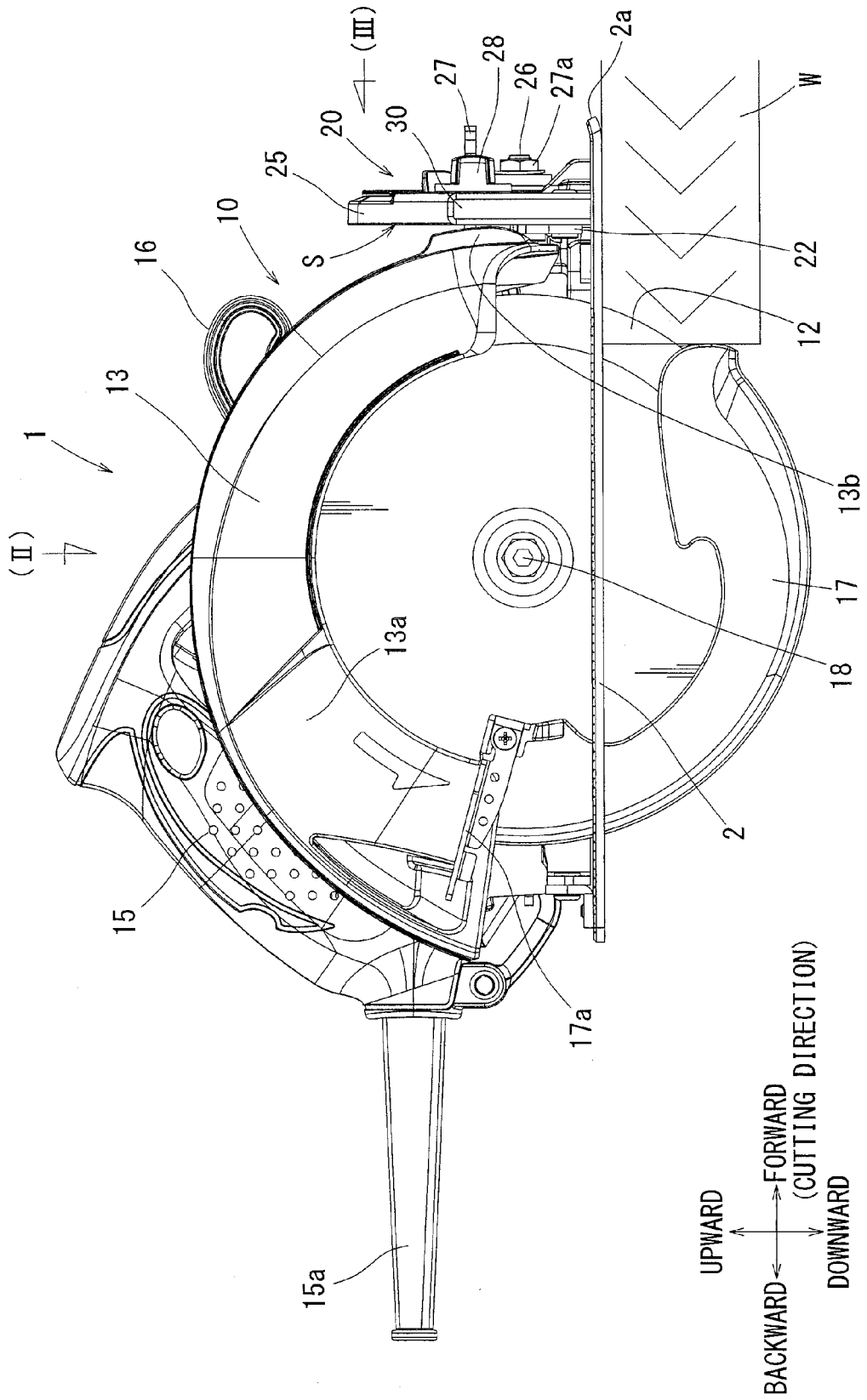
(III)
2a
28
27
26
27a
W
20
30
25
10
S
22
16
12
13
1
13b
(II)
17
13a
18
2
15
17a
15a
UPWARD
FORWARD
(CUTTING DIRECTION)
DOWNWARD
BACKWARD

FIG. 1

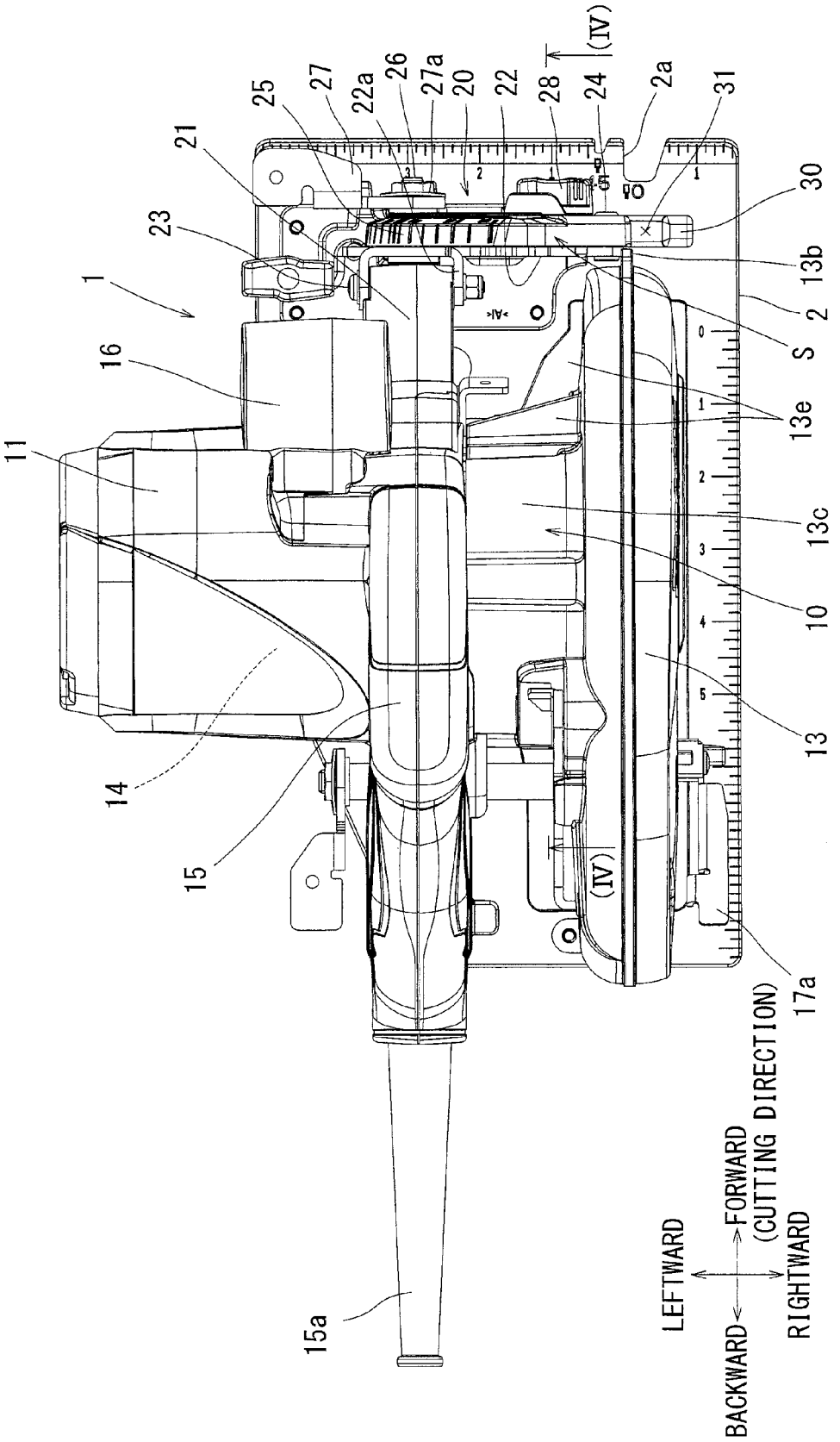
(IV)
25
27
22a
26
27a
20
22
28
24
2a
31
21
30
23
13b
1
2
S
16
13e
11
13c
10
13
14
15
(IV)
17a
15a
LEFTWARD
FORWARD
(CUTTING DIRECTION)
BACKWARD
RIGHTWARD

FIG. 2

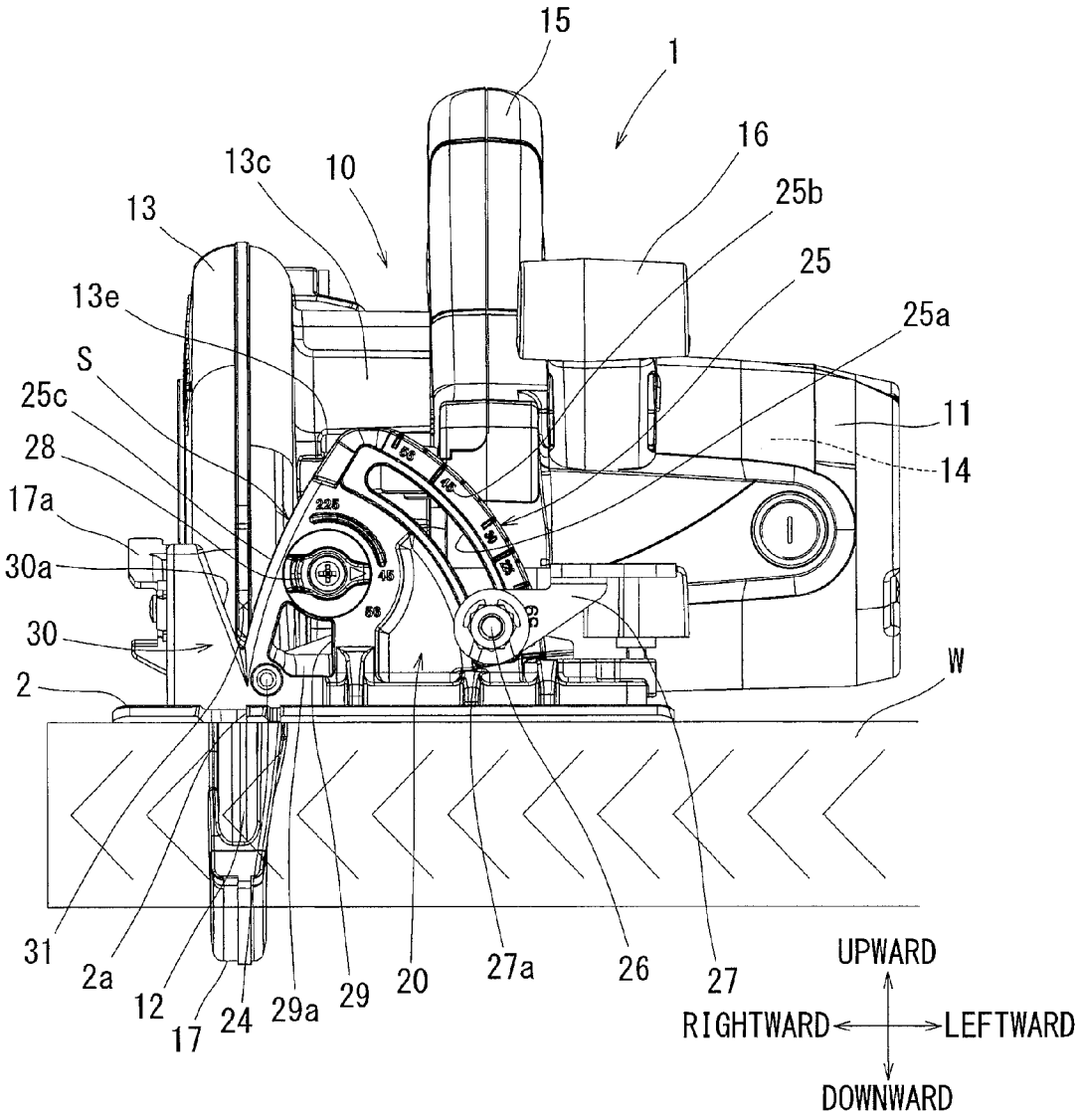
15
1
16
13c
10
25b
13
25
13e
25a
S
11
25c
14
28
17a
30a
30
2
W
31
2a
12
17
24
29a
29
20
27a
26
27
UPWARD
RIGHTWARD
LEFTWARD
DOWNWARD

FIG. 3

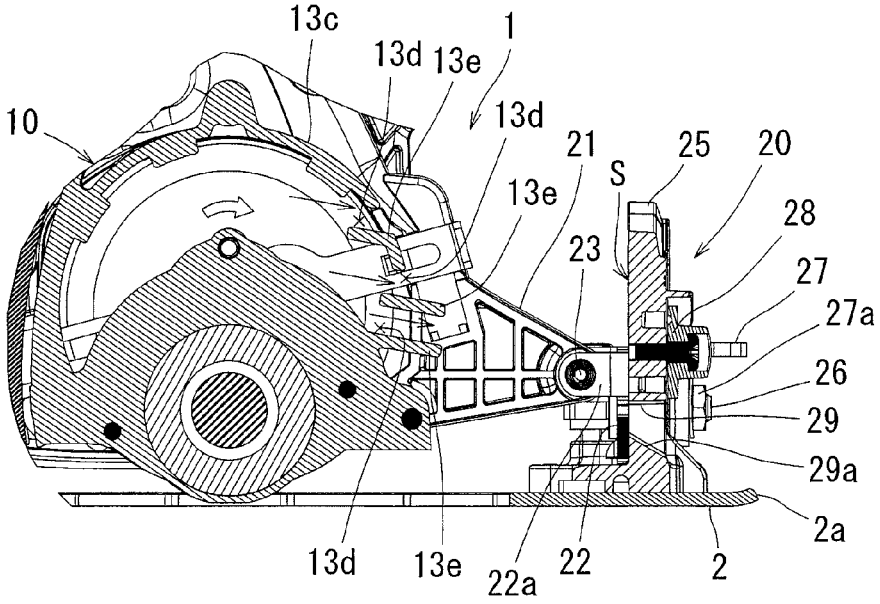

FIG. 4

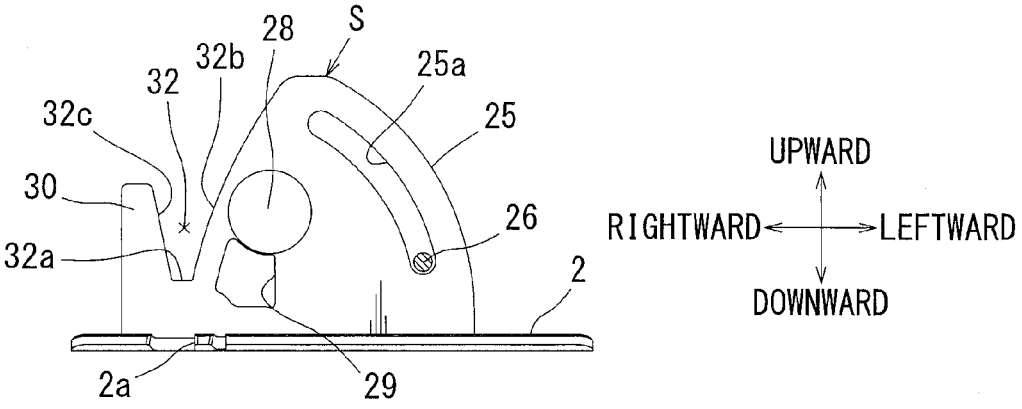

FIG. 5

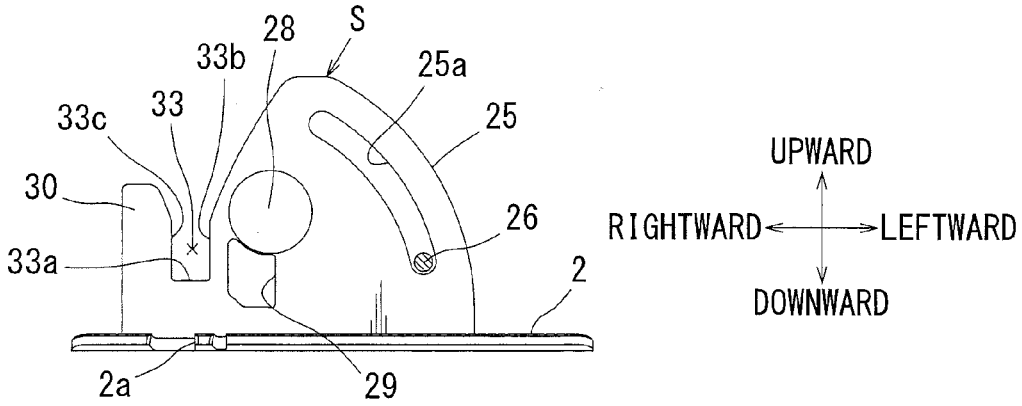

FIG. 6

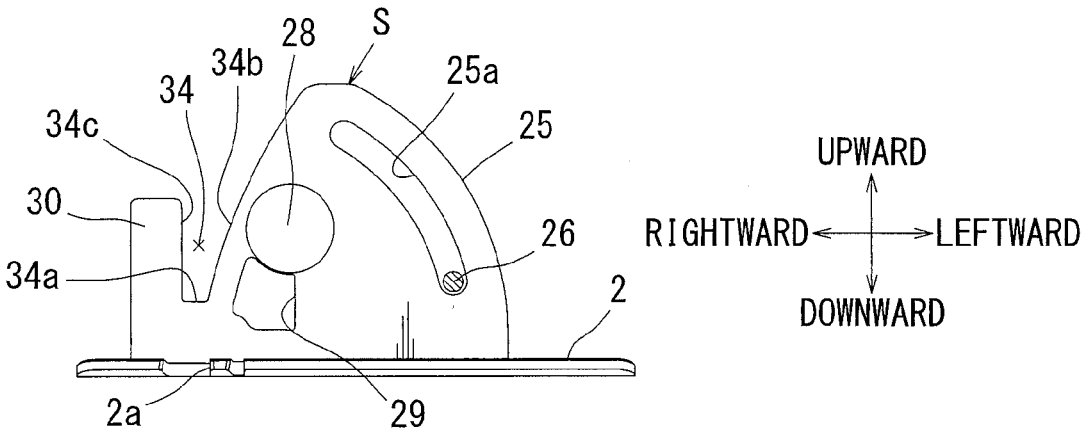
S
28
34b
34
25a
34c
25
30
26
34a
2
2a
29
UPWARD
RIGHTWARD
LEFTWARD
DOWNWARD

FIG. 7

CUTTING DEVICE

This application claims priority to Japanese patent application serial number 2013-99010, the contents of which are incorporated herein by reference.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a cutting device such as a portable circular saw, and particularly to a cutting device that cuts a workpiece such as wood by rotating a circular cutting blade (saw blade).

2. Description of the Related Art

A cutting device such as a portable circular saw may have a cutting device main body in which a circular cutting blade rotates via the driving of an electric motor. The cutting device main body is disposed at an upper side of a base. The base is brought into contact with an upper surface of a workpiece. A user can cut a workpiece by moving the cutting device in a cutting direction. The cutting blade protrudes toward a lower surface side of the base cuts into the workpiece.

In these kinds of cutting devices, various improvements have been made to effectively process cutting powder generated by the cutting of a material and increase the efficiency of the cutting. In particular, a marking line guide for positioning a cutting blade on a marking line drawn on the workpiece is provided on a front end side of the base. In case that the marking line guide and the marking line are not easily viewed due to accumulation of the cutting powder, rapid cutting cannot be performed. Considering this situation, improvements have been made to appropriately process the cutting powder in the vicinity of the marking line guide.

For example, Japanese Laid-Open Patent Publication No. 2005-193572 discloses that cutting powder is prevented from being accumulated by purging the power accumulated around the marking line guide (top guide) provided on a front side of a base by using cooling air that is discharged from an electric motor. Further, Japanese Laid-Open Patent Publication No. 2006-088559 discloses that cutting powder is prevented from being accumulated on a base by effectively collecting the cutting powder in a collection path provided in a blade case using a flow generated by the rotation of a cutting blade and a cooling air from an electric motor. In addition, Japanese Laid-Open Patent Publication No. 2009-214292 discloses a technique that prevents cutting powder from being accumulated by effectively introducing cooling air exhausted from a cutting device main body into a front portion of a base.

In a cutting device such as a portable circular saw, the cutting powder may accumulate largely in the vicinity of the marking line guide provided on the front side of the base. This thereby reduces the visibility of the marking line guide. In order to prevent a reduction in the operability of the cutting device, improvements have been made such that the cutting powder is prevented from being accumulated in the vicinity of the marking line guide of the base front end by purging the power with cooling air discharged form the cutting device main body.

However, in these kinds of cutting devices, a cutting device main body is configured to incline on a right side or left side in a cutting direction with respect to a base to perform so-called an inclination cutting. Further, it is configured such that in order to purge cutting power accumulated around a marking line guide on a front side of a base with a cooling air, a ventilation pipe portion is provided on a rear side of a blade case to guide the cooling air discharged from an exhaust port of an electric motor to the front side of the base. Accordingly, when the cutting device main body is inclined with respect to the base to perform the inclination cutting, a purging direction of the cooling air discharged from the ventilation pipe portion is changed and sufficient air is not applied to the vicinity of the front side of the base. As a result, purging of the cutting powder is not sufficiently performed and the ease in operation of the tool can deteriorate.

Thus, there is a need to maintain high operability by effectively purging the cutting power with the cooling air exhausted from the cutting device main body to the vicinity of a top guide of the front side of the base. This needs to be maintained when the cutting device main body is positioned not only at a perpendicular cutting position but also at an inclination cutting position.

SUMMARY OF THE INVENTION

According to a first aspect of the present invention, there is provided a cutting device including a base that is brought into contact with an upper surface of a workpiece, and a cutting device main body that is supported on an upper surface side of the base and includes a circular cutting blade that is rotated by an electric motor. The circular cutting blade for cutting into the workpiece protrudes toward a lower surface side of the base. Further, a wind shielding portion is provided such that it crosses between a marking line guide provided on a front portion of the base and the cutting blade. A ventilation portion for flowing cooling air from the electric motor in the forward direction is provided in the wind shielding portion such that it is positioned at a front side of the cutting blade. Further, electric motor is configured to blow the cooling air through the ventilation portion to the marking line guide.

In the first aspect, after the cooling air from the electric motor of the cutting device main body is blown to the wind shielding portion and flows while being subjected to resistance along the wind shielding portion, the cooling air flows to the front side of the wind shielding portion through the ventilation portion which is not subjected to the flow resistance of the air. The ventilation portion is positioned at the front side of the cutting blade, and thus, the cooling air is directly blown to the marking line guide. Since the cooling air is blown through the ventilation portion to the marking line guide, accumulation of cutting powder in the vicinity of the marking line guide is suppressed and high visibility of the marking line guide is maintained. In this way, high operability of the cutting device is maintained.

Since the wind shielding portion is provided to cross the front side of the cutting blade not only when the cutting device main body is positioned at a perpendicular cutting position, but also when the cutting device main body is positioned at an inclination cutting position, the cooling air is effectively blown to the wind shielding portion. Accordingly, even when the so-called inclination cutting is performed, the cutting powder accumulated on the marking line guide can be effectively purged. In this way, high visibility and operability can be maintained.

According to another aspect of the present invention, the wind shielding portion includes wall portions in the right and left sides in a cutting direction. Further, an opening serving as the ventilation portion is provided between the wall portions, and the ventilation portion is provided such that it is opened to the upper direction.

In the above aspect, the cutting powder can be purged by blowing the cooling air through the ventilation portion and to the marking line guide.

According to another aspect of the present invention, the wind shield portion may include an angular plate and a regulation wall portion. The angular plate that supports the cutting device main body is provided such that the cutting device main body can be inclined in the lateral direction with respect to the cutting direction. Further, the regulation wall portion is disposed side by side in parallel to the angular plate such that it crosses the front side of the cutting blade, and an opening for serving as the ventilation portion is provided between the regulation wall portion and the angular plate

In the above aspect, the cooling air is blown to the marking line guide through the ventilation portion which corresponds to the opening located between the angular plate and the regulation wall portion.

According to another aspect of the present invention, the wind shield portion is configured such that an angular plate that supports the cutting device main body is provided such that the cutting device main body can be inclined in the lateral direction with respect to the cutting direction. Further, the angular plate extends such that it crosses the front side of the cutting blade.

In the above aspect, the wind shielding portion is formed by extending the angular plate to an opposite side in the cutting direction.

As described above, the wind shielding portion is provided such that it extends in both the right and left sides in the cutting direction with respect to the cutting blade, and the ventilation portion is provided in the wind shielding portion at the front side (on the same plain) of the cutting blade. The cooling air is blown to the wind shielding portion regardless of the inclination position of the cutting device main body and the cooling air can be effectively blown to the marking line guide through the ventilation portion having a smaller ventilating resistance. Accordingly, the wind shielding portion may include the angular plate positioned at one side of the right and left sides in the cutting direction. The wind shielding portion may also include a regulation wall portion positioned adjacent to the angular plate. This regulation wall portion interposes a ventilation portion (opening) on the side opposite the angular plate side. Alternatively, the wind shielding portion may be configured such that that the angular plate extends to the opposite side in the cutting direction to form the ventilation portion at the front side of the cutting blade. In these ways, the same effects as the first aspect can be obtained.

According to another aspect of the present invention, the ventilation portion is configured to have a V shape such that a width of the ventilation portion gradually narrows toward a lower side close to the base.

In the above aspect, a flow rate of the wind passing through the ventilation portion increases as it approaches the lower side close to the base. Accordingly, the cutting powder in the vicinity of the marking line guide can be effectively purged.

According to another aspect of the present invention, an exhaust hole is provided in the left side of the wind shielding portion with respect to the cutting direction. Further, the cooling air from the motor is configured to blow to the marking line guide through the exhaust hole in addition to the ventilation portion.

In the above aspect, a larger amount of cooling air is blown through both the ventilation portion and the exhaust hole to the marking line guide. In this way, cutting powder can be purged more effectively.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a right side view of a cutting device according to an embodiment of the present invention.

FIG. **2** is a plan view when the cutting device according to the present embodiment is viewed from an arrow (II) direction of FIG. **1**.

FIG. **3** is a front view of the cutting device according to an embodiment.

FIG. **4** is a cross-sectional view taken along an arrow (IV)-(IV) of FIG. **2** of the cutting device according to an embodiment.

FIG. **5** is a front view of a wind shielding portion when a ventilation portion according to another embodiment is viewed from the front side.

FIG. **6** is a front view of a wind shielding portion when a ventilation portion according to another embodiment is viewed from the front side.

FIG. **7** is a front view of a wind shielding portion when a ventilation portion according to another embodiment is viewed from the front side.

DETAILED DESCRIPTION OF THE INVENTION

Each of the additional features and teachings disclosed above and below may be utilized separately or in conjunction with other features and teachings to provide an improved cutting device. Representative examples of the present teaching, which examples utilize many of these additional features and teachings both separately and in conjunction with one another, will now be described in detail with reference to the attached drawings. This detailed description is merely intended to teach a person of skill in the art further details for practicing preferred aspects of the present teachings and is not intended to limit the scope of the invention. Only the claims define the scope of the claimed invention. Therefore, combinations of features and steps disclosed in the following detailed description may not be necessary to practice the invention in the broadest sense, and are instead taught merely to particularly describe representative examples of the invention. Moreover, various features of the representative examples and the dependent claims may be combined in ways that are not specifically enumerated in order to provide additional useful examples of the present teachings.

One embodiment of the present invention will be described below with reference to FIGS. **1** to **7**. FIGS. **1** to **3** show a cutting device **1** according to the present embodiment. A workpiece W is cut by moving the cutting device **1** to the right side in FIG. **1**. In the following descriptions, a direction (cutting direction) in which cutting proceeds is referred to as a front side. A user is positioned at a rear side of the cutting device **1**. Further, an up-down direction and a right-left direction of a member or a configuration of the cutting device are based on the user's position.

A base **2** has an approximately rectangular flat-plate shape, and there is provided on a front end portion of the base a marking line guide (top guide) **2***a* for positioning a cutting blade **12** along a marking line drawn on an upper surface of the workpiece W.

The cutting device **1** is a handheld cutting device such as a portable circular saw. The cutting device **1** includes a base **2** that is brought into contact with the upper surface of the

workpiece W and a cutting device main body **10** that is supported via a main body support portion **20** located on an upper surface of the base **2**.

The cutting device main body **10** includes the circular cutting blade **12** that is rotated by an electric motor **14** serving as a driving source. An upper half periphery of the cutting blade **12** is covered by a fixing cover portion **13***a* of a blade case **13**. The electric motor **14** is mounted via a reduction gear portion that is provided in a cylindrical portion **13***c* of a rear surface (left side surface) of the blade case **13**. As described below, a wall portion **13***b* that regulates the flow of cooling air from the motor is provided on a front portion of the fixing cover portion **13***a*. The wall portion **13***b* is provided to extend to the front side in a flat plate shape in approximately the same plane as the cutting blade **12**. As shown in FIG. **1**, the wall portion **13***b* is provided to extend to the front side such that the wall portion does not interfere with a wind shielding portion S (angular plate **25** and regulation wall portion **30**).

A loop shaped handle portion **15** that can be grasped by a user is provided in the vicinity of a joint portion between a motor housing **11** and a cylindrical portion **13***c*. A front grip **16** is provided on a front portion of the handle portion **15**. The user moves and operates the cutting device **1** while grasping the handle portion **15** by one hand and the front grip **16** by the other hand. An electric cord **15***a* for AC power supply is pulled in the rear portion of the handle portion **15**.

As shown in FIG. **4**, exhaust ports **13***d*-**13***d* for discharging the cooling air forward are provided on a front circumferential surface of the cylindrical portion **13***c*. A fin **13***e* for guiding the cooling air in a discharging direction is provided in each exhaust port **13***d* such that they extend in a forward direction. A void arrow in FIG. **4** shows a rotation direction (clockwise direction) of a cooling fan (not shown) that is rotated by the electric motor **14**. The cooling fan is rotated in a direction shown by the void arrow in FIG. **4**, and the cooling air from the motor is discharged forward and downward at an angle (a direction indicated by an arrow) through each of the exhaust ports **13***d*-**13***d*. After the discharged cooling air is blown to the rear surface of the wind shielding portion S, the wall portion **13***b* regulates diffusion of the cooling air toward the right side in the cutting direction.

As shown in FIG. **1**, the cutting blade **12** is rotated in a counterclockwise direction. The cutting blade **12** is mounted on an output shaft **18** in the blade case **13**. A lower portion side of the cutting blade **12** protrudes from a lower surface side of the base **2**. A cutting process is made by the protruding portion being cut into the workpiece W. The circumference of the lower portion side of the cutting blade **12** is covered by a movable cover **17**. The movable cover **17** is opened and closed by the moving operation of the cutting device **1** in a state where the front end of the movable cover comes into contact with the workpiece W. An opening and closing lever **17***a* is provided on the rear portion of the movable cover **17**. By grasping the opening and closing lever **17***a*, a user can open and close the movable cover **17** by a manual operation. A spring is biased to the closing side of the movable cover **17**.

The cutting device main body **10** is tiltably supported in an up and down direction and tiltably supported in a right and left direction in the upper surface side of the base **2** via the main body support portion **20**. By cutting the cutting device main body **10** in the up and down direction with respect to the base **2**, a protrusion amount of the cutting blade **12** protruding from the lower surface side of the base **2** can be varied. In this way, the cutting depth of the workpiece W can be adjusted. Further, by inclining the cutting device main body **10** to the left side or the right side with respect to the base **2**, a so-called inclination cutting of the workpiece W can be performed. The front portion side of the cutting device main body **10** is supported via the main body support portion **20** on the upper surface of the base **2**. The rear portion side of the cutting device main body **10** is supported via an auxiliary support portion on the upper surface of the base **2**. As shown in FIG. **2**, a support arm portion **21** is integrally provided on the front portion of the handle portion **15**. The support arm portion **21** extends in the forward direction. The front portion of the support arm portion **21** is connected to a bracket portion **22***a* of a tilting base **22** via a vertical tilting shaft **23** such that it can be tilted in the up and down direction. By tilting the cutting device main body **10** in the up and down direction around the vertical tilting shaft **23**, the protrusion amount of the cutting blade **12** protruding from the lower surface side of the base **2** can be varied. In this way, the cutting depth of the cutting blade **12** with respect to the workpiece W can be adjusted.

The tilting base **22** is connected along the rear surface of the angular plate **25** via a horizontal tilting shaft **24** such that it can be rotated in the up and down direction. For example, by rotating the tilting base **22** in a counterclockwise direction around the horizontal tilting shaft **24**, the cutting device main body **10** can be inclined to the right side in the cutting direction (refer to FIG. **3**). By setting the cutting device main body **10** to the right side at an angle (a direction in which the lower end side of the cutting blade **12** is displaced to the left side), a rotation axis (a rotation axis of the output shaft **18**) of the cutting blade **12** can be set at an incline with respect to the upper surface of the workpiece W. In this way, the so-called inclination cutting can be performed.

As shown in FIG. **3**, the angular plate **25** has an approximately fan-shaped flat plate shape. The angular plate **25** is fixed such that it stands on the upper surface of the base **2**. An arcuate groove hole **25***a* is provided along the outer circumferential side of the angular plate **25**. A fixation screw **26** is inserted into the groove hole **25***a*. The fixation screw **26** is connected to the tilting base **22**. A nut **27***a* provided on a lever **27** can be fastened to the fixation screw **26**.

By rotating the lever **27** by an appropriate angle in a screw loosening direction, the fastening state of the nut **27***a* with respect to the fixation screw **26** can be loosened. In this way, the fixation state of the tilting base **22** with respect to the angular plate **25** can be released. By releasing the fixation state of the tilting base **22** with respect to the angular plate **25**, the cutting device main body **10** can be tilted to the right direction or left direction around the horizontal tilting shaft **24**. By rotating the lever **27** in a screw fastening direction and fastening the nut **27***a* with respect to the fixation screw **26**, the tilting base **22** can be fixed to the angular plate **25**. When the tilting base **22** is fixed to the angular plate **25** by the fastening of the lever **27**, a perpendicular cutting position (a position at which the cutting blade **12** is positioned to be perpendicular to the base **2**) or an inclination position (a position at which the cutting blade **12** is inclined laterally with respect to the base **2**) of the cutting device main body **10** is fixed. Further, angle scales **25***b* for indicating inclination angles of the cutting device main body **10** are indicated on the front surface and the outer circumferential surface of the angular plate **25** along the outer circumferential side of the groove hole **25***a*. For example, in the angle scales **25***b* of FIG. **3**, angles of 0°, 15°, 22.5°, 30°, 45°, and 56° are indicated in this order. (In FIG. **3**, the angles of 0° and 15° are hidden by the lever **27**.)

A positive-lock-type inclination positioning dial **28** for accurately positioning the incline angles of 22.5°, 45°, and

56° of the cutting device main body **10** is provided on the front surface of the angular plate **25**.

An exhaust hole **29** is provided on the lower side of the inclination positioning dial **28**. The exhaust hole **29** penetrates the angular plate **25** in a plate thickness direction (front-rear direction). Further, the exhaust hole **29** is formed to be large enough to such a degree to maintain the necessary strength of the angular plate **25**. As shown in FIG. **4**, an air guide surface **29***a* is provided on the lower surface of the exhaust hole **29** such that it is slanted down toward the front side. As described below, the cooling air from the motor that flows into the exhaust hole **29** from the rear side of the angular plate **25** is effectively blown toward the marking line guide **2***a* of the base **2** by the air guide surface **29***a*.

The regulation wall portion **30** is provided on the right side of the angular plate such that it extends so as to be approximately flush with the angular plate **25**. The regulation wall portion **30** has a small piece having the same plate thickness as the angular plate **25**, and is provided to extend in the right direction from the angular plate **25**. The regulation wall portion **30** is fixed to the base **2** and extends in an upward direction from the upper surface of the base **2**. As shown in FIG. **3**, a V shaped opening that is formed between a left inclination surface **30***a* of the regulation wall portion **30** and a right inclination surface **25***c* of the angular plate **25** corresponds to a ventilation portion **31** according to a first embodiment. A width of the ventilation portion **31** gradually narrows toward the lower side close to the base **2**. As shown in FIG. **3**, the lower end (a tip of the V shape portion) of the ventilation portion **31** is positioned near the cutting blade **12** with respect to a lateral width direction. Consequently, it is positioned at the marking line guide **2***a* of the base **2**. In the present embodiment, the wind shielding portion S includes the angular plate **25** and the regulation wall portion **30**. The angular plate **25** and the regulation wall portion **30** are disposed such that the former is positioned in the right direction and the latter is positioned in the left direction with respect to the cutting direction.

According to the above-described cutting device **1** of the present embodiment, the wind shielding portion S is provided to cross over the lateral width in the front side of the cutting blade **12**. Accordingly, the cooling air from the electric motor **14**, which is discharged to the front side through the exhaust ports **13***d*-**13***d*, is blown to the rear surface of the wind shielding portion S which includes the angular plate **25** and the regulation wall portion **30**. According to the wind shielding portion S, diffusion of the cooling air is regulated mainly in the forward direction, regardless of the perpendicular cutting or the inclination cutting.

As shown in FIG. **3**, when the cutting device main body **10** is positioned at the perpendicular cutting position, the cooling air, which is discharged to the front side through the exhaust ports **13***d*-**13***d* provided on the front portion of the cylindrical portion **13***c*, is blown mainly to the rear surface of the angular plate **25**. A part of the blown cooling air is discharged to the front portion side of the base **2** via the exhaust hole **29** provided on the angular plate **25**. The, the cooling air is blown in the vicinity of the marking line guide **2***a*. The diffusion of the cooling air to the right side is regulated by the wall portion **13***b* provided on the blade case **13**. Accordingly, the cooling air effectively flows into the exhaust hole **29**.

Further, the residual of the cooling air blown to the rear surface of the angular plate **25** flows to the right side (the lower side in FIG. **2**) along the rear surface of the angular plate **25**. The cooling air, which flows in the right direction with ventilation resistance being applied along the rear surface of the angular plate **25**, is discharged in the forward direction through the ventilation portion **31** that is formed between the angular plate and the regulation wall portion **30**. In the ventilation portion **31**, the cooling air is not subjected to ventilating resistance. Accordingly, the cooling air does not flow to the rear surface of the regulation wall portion **30** and is effectively and smoothly discharged in the forward direction through the ventilation portion **31**.

When the cutting device main body **10** is inclined to the right direction with respect to the cutting direction, the cooling air is largely blown to the regulation wall portion **30** of the wind shielding portion S. However, much of the cooling air flows to the ventilation portion **31** to which the ventilation resistance is not applied. Accordingly, similar to that which occurs during perpendicular cutting, the cooling air is effectively discharged to the marking line guide **2***a* through the ventilation portion **31**.

In this way, in the cutting device according to the above-described embodiment, when the cutting device main body **10** is inclined to perform the inclination cutting, the cooling air discharged in the forward direction through the exhaust ports **13***d*-**13***d* can be effectively blown to the marking line guide **2***a*. In this way, the accumulation of cutting powder is suppressed. Thus, improved workability of the cutting device **1** can be maintained.

Moreover, the ventilation portion **31** is formed in a V shape in which the width of the ventilation portion gradually narrows toward the lower side close to the base **2**. With regard to a flow rate of the cooling air passing through the ventilation portion **31**, the cooling air passes through the ventilation portion at a faster flow rate (purging ability of cutting powder) as it flows closer to the lower side toward the marking line guide **2***a*. Accordingly, it is ensured that the cutting powder can be purged in the vicinity of the marking line guide **2***a*.

The present invention is not limited to the above-described embodiments, and can be modified without departing from the scope of the present invention. In the above embodiment, the regulation wall portion **30** is integrally provided on the upper surface of the base **2**. However, the regulation wall portion may be integrally provided on the angular plate **25**. In this case, the angular plate **25** extends over the front side of the cutting blade **12** in the right direction to form the wind shielding portion. Further, the ventilation portion for causing the cooling air to pass through is provided in the wind shielding portion such that it is positioned at the front side of the cutting blade **12**. In this configuration, the same effects can be obtained.

The exhaust hole **29** provided on the angular plate **25** and the wall portion **13***b* provided on the blade case **13** may be omitted.

Further, in the above embodiment, the ventilation portion **31** is formed in a V shape in which the width gradually narrows toward the lower side close to the base **2**. However, the ventilation portion may be an opening or a groove hole in which the width is not changed in the up-down direction, or the ventilation portion may be one or a plurality of circular or rectangular ventilation holes.

FIGS. **5** to **7** show other embodiments with respect to the shape of the ventilation portion **31**. In a ventilation portion **32** according to another embodiment shown in FIG. **5**, the ventilation portion **32** is provided between the angular plate **25** and the regulation wall portion **30** in the same way as the ventilation portion **31**. However, unlike the ventilation portion **31**, a lower portion **32***a* of the ventilation portion **32** is formed to be flat (to be parallel to the base **2**). Further, right and left sides **32***c* and **32***b* of the ventilation portion **32** are

inclined (V shape) in the direction in which the sides **32***b* and **32***c* approach each other toward the lower side, as described above. Accordingly, the width of the ventilation portion **32** is gradually narrowed toward the lower side.

In a ventilation portion **33** according to another embodiment shown in FIG. **6**, the ventilation portion **33** is provided between the angular plate **25** and the regulation wall portion **30**. A lower portion **33***a* of the ventilation portion is formed to be flat in the same way as the above embodiment. Right and left sides **33***c* and **33***b* of the ventilation portion **33** according to this embodiment are formed to be parallel to the cutting blade **12** (not inclined) and to be parallel to each other. Accordingly, the width of the ventilation portion **33** according to this embodiment is not changed in the up-down direction.

In a ventilation portion **34** according to another embodiment shown in FIG. **7**, the ventilation portion **34** is provided between the angular plate **25** and the regulation wall portion **30** and a lower portion **34***a* of the ventilation portion **34** is formed in a flat surface in parallel to the base **2**. The left portion **34***b* (the right portion of the angular plate **25**) of the ventilation portion **34** according to this embodiment is inclined in the same way as the above embodiments. On the other hand, the right portion **34***c* of the ventilation portion **34** (the left portion of the regulation wall portion) is formed to be parallel to the cutting blade **12**.

According to the above-described ventilation portions **32** to **34**, the cutting power accumulated near the marking line guide can be purged by the cooling air. Accordingly, high visibility of the marking line guide **2***a* is maintained.

We claim:

1. A cutting device comprising:

a base that is brought into contact with an upper surface of a workpiece; and

a cutting device main body that is supported on an upper surface side of the base and includes a circular cutting blade that is rotated by an electric motor, the circular cutting blade for cutting into the workpiece protruding toward a lower surface side of the base, wherein,

a wind shielding portion is provided to cross between a marking line guide provided on a front portion of the base and the cutting blade; and

a ventilation portion that guides air produced by a rotation of the electric motor in a forward direction, the ventilation portion being positioned at a front side of the cutting blade, the ventilation portion guiding the air produced by the rotation of the electric motor toward the marking line guide;

wherein the wind shielding portion consists of a right wall portion and a left wall portion positioned on a right side and a left side, respectively, with respect to a plane defined by the cutting blade; and

an opening serving as the ventilation portion is provided between the wall portions; the opening being formed to be open at an upper side which is opposite to a lower side adjacent to the base.

2. The cutting device according to claim **1**, wherein

one of the right and left wall portions is formed by an angular plate,

the angular plate supports the cutting device main body such that the cutting device main body can be inclined in a lateral direction with respect to a cutting direction in which the workpiece is cut; and

the opening for serving as the ventilation portion is formed between an inner surface of other of the right and left wall portions and an outer surface of the angular plate, the other of the right and left wall portions being different from the angular plate.

3. The cutting device according to claim **2**, wherein the other of the right and left wall portions extends from the angular plate.

4. The cutting device according to claim **1**, wherein the opening has a V shape such that a width of the opening gradually narrows toward a lower side adjacent to the base.

5. The cutting device according to claim **1**, wherein:

an exhaust hole is provided on a left side of the wind shielding portion with respect to the cutting blade in a cutting direction in which the workpiece is cut; and

the wind shielding portion and the ventilation portion having the exhaust hole are configured to direct the air produced by the rotation of the electric motor toward the marking line guide through the ventilation portion and the exhaust hole.

6. The cutting device according to claim **1**, wherein:

the left wall portion is formed by an angular plate, the angular plate supporting the cutting device main body such that the cutting device main body can be inclined in a lateral direction with respect to a cutting direction in which the workpiece is cut;

the right wall portion is attached to a lower portion of the angular plate, and

the opening is formed by an inner surface of the right wall portion and an outer surface of an upper portion of the angular plate.

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